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What Are Education Students' Perceptions of the Role of Technology in Social Studies Pedagogy?

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Preservice teachers need both awareness of and skill with the latest digital technologies in order to use these tools effectively in their teaching. Historically in our university, this preparation has been reserved for a stand-alone information technology course focused on learning how to use various computer-based programs. However, more direct experience in subject-specific pedagogy courses is necessary to develop a deeper understanding about how a technology-rich environment can help to develop subject-specific knowledge. The study reported here examined the influences of two technology-infused social studies pedagogy courses on students' perceptions about why, when, and how most effectively to infuse technology in their teaching of social studies and their feelings of preparedness to use those technologies.

Les stagiaires doivent être au courant des technologies numériques et ils doivent savoir s'en servir de sorte à les intégrer efficacement à leur enseignement. Dans notre université, cette préparation a toujours été offerte dans le contexte d'un cours autonome portant sur la technologie de l'information et l'emploi de divers programmes informatiques. Toutefois, il faut avoir plus d'expériences directes dans des cours de pédagogie disciplinaires afin de pouvoir mieux tirer profit d'un milieu riche sur le plan informatique dans le développement de connaissances spécifiques aux disciplines. Cet article décrit une étude portant sur deux cours de pédagogie hautement informatisés et ayant trait aux études sociales. On a examiné, d'une part, les perceptions des étudiants quant à l'intégration efficace de la technologie dans leur enseignement des études sociales (pourquoi, quand et comment) et, d'autre part, la mesure dans laquelle ils se sentaient prêts à employer ces technologies.

Historically, much like many other teacher education institutions, the Faculty of Education in our university has required a stand-alone information technology course focused on learning how to use various computer-based programs. However, according to Belland (2009), one stand-alone educational technology course focused on learning how to use tools "is not effective in promoting technology integration among graduating teachers" (p. 359). Although such a course can assist with the development of technological skills, we believe and the research recommends that our future teachers need more direct experiences with Internet-based tools in their subject-specific pedagogy courses in order to develop a deeper understanding about how a technology rich environment can help to develop subject-specific knowledge.

Over the last few years, as part of a special Faculty initiative aimed at increased technology integration, the instructors of our two elementary social studies pedagogy courses in our Faculty of Education have been attempting to infuse the use of emerging Internet-based technologies in

their courses to demonstrate how these tools can augment the teaching of social studies content and skills. The purpose of the research project described in this article was to examine the effect that immersion in these technology-enriched, preservice pedagogy courses in the area of social studies education had on our preservice teachers' perceptions of how to approach technology use in their teaching of social studies. To explore this inquiry**,** our research question was: What is the nature and extent of preservice teachers' knowledge and skill for using technology in their teaching of social studies both before and following their pedagogy courses?

Literature Review

Educating our youth for the digital age requires teaching that is not only infused with the latest in technological tools, but that also develops digitally literate citizens who can locate, evaluate, and ethically use information; think critically and creatively; problem-solve; make decisions; and collaborate with others from around the globe (Leu, Kinzer, Coiro, & Cammack, 2004). All these skills are essential learning outcomes identified in the social studies curriculum (Alberta Education, 2005). In order for teachers to use the latest digital technologies effectively in their teaching to promote the development of digital-literate students, they need both awareness of and skill with these tools (Duhaney, 2001). Beginning teachers just entering the field also need to be adequately prepared for this new reality (Rowley, Dysard, & Arnold, 2005). Consequently, educational experiences that model the use of emerging technologies must be built into teacher preparation programs (Brown & Warschauer, 2006).

Although a critical factor in the successful integration of computers into teaching and learning is teacher education (Beaudin & Hadden, 2005), preparing preservice teachers for technology use in the classroom is a difficult process that requires frequent opportunities for developing understanding and competences throughout a teacher education program (Angeli, 2004). "Effectively integrating new technology into educational practice is not just a matter of learning how to use technology. It is also a process of reflecting on how to teach and how students can learn most effectively in today's world" (Wiske, Franz, & Breit, 2005, p. 3).

Magliaro and Ezeife (2007) maintain that preservice teachers, in particular at the primary and junior areas, need to be introduced to computer-use boosting courses as well as having opportunities to practice technology knowledge and skills in authentic settings in their preservice education courses. In addition to exposure and practice with these tools, preservice teachers also should be challenged to think about where the use of digital technologies fits into their philosophy of teaching, especially their beliefs about the nature of students and learning (Windschitl & Sahl, 2002). For example, Teo, Chai, Hung, and Lee (2008) maintain that preservice teachers need exposure to student-centered pedagogy and "should be guided to become well-versed with the principles of the constructivist use of technology and be acquainted with the impact of such practices on the learning outcomes in the classroom" (p. 170). Exploring questions about why, when, and how to use technology is best done in combination with the development of subject-specific knowledge structures (Dexter & Riedel, 2003). Therefore, in the case of social studies, which focuses on the development of conceptual understanding, critical and creative thinking, inquiry, communication and collaboration, and problem-solving and decision-making skills (Alberta Education, 2005), if Internet-based technologies are to be used to support and enhance the development of these skills in the classroom, then preservice teachers need to see these uses modeled in their teacher education program (Brown & Warschauer, 2006).

Setting the Context

Education students at our university are required to take an introductory technology course and can also take two pedagogy courses related to social studies teaching and learning during their four-year teacher education program. As recommended in the literature, in the introductory social studies pedagogy course offered in the third year, technology is used to expand students' knowledge and understanding of teaching approaches such as constructivism and concept development as well as key social studies concepts such as citizenship and diversity. Preservice teachers are regularly introduced to examples of technology-supported best practices. For example, online videoclips of master teachers working with elementary students are used to help education students identify and clarify how and why to use constructivist pedagogy. This approach to knowledge transfer develops cognitive flexibility as students look at teaching and learning concepts and instructional issues from authentic settings and from multiple perspectives (Brown, Collins, & Duguid, 1989). Online teaching tools such as rubrics, lesson plans, and repositories of primary sources for teaching history and geography are also investigated and evaluated. Student assignments introduce technology-supported modes of representing learning, of supporting metacognitive thought, of deepening understanding of abstract concepts, and introduce technology as a mindtool (Jonassen, 1995). These assignments make use of Internet-based tools such as Weblogs, digital mapping, podcasts, video interfaces, and VoiceThreads. A class Wiki serves as the hub of the class by providing a space to host course content as well as a collaborative environment for students to construct their knowledge and reflect on their learning.

In the second advanced social studies pedagogy course, offered in the fourth year, constructivist strategies are used to reinforce the integration of online teaching tools and to create a culture of inquiry and collaborative learning (Jacobsen, Clifford, & Friesen, 2002). Technology is infused throughout the course both to model effective strategies for developing concepts, promoting collaborative inquiry in social studies using Internet-based tools, and helping class participants to develop their own personal technology skills and understanding. For example, using Internet-based tools such as Wordle, Inspiration, and Glogster, education students are encouraged to represent their social studies subject matter knowledge and to share their understandings with each other. For one course assignment, they critically examine online news sources and use these sources to prepare an activity for children that incorporates diverse perspectives on a current controversial issue relevant to the social studies curriculum. As well, two-way audio and video technology is used to bring the realities of classroom teaching into preservice course work. At several points throughout the course, education students are connected synchronously to practicing teachers and children in elementary classrooms while social studies is being taught. These online videoconferencing sessions allow education students to share a common observation of skilled teachers, which can then be discussed in class, as well as the opportunity to see how such a technology can be used in the elementary classroom to promote collaboration and communication (Basham, Lowrey, & Jones, 2006; Lehman & Richardson, 2007). These master teachers, the children, and the education students also have opportunities to interact by blogging. Education students are encouraged to reflect regularly in their class journals about what they are learning and thinking about using Internet-based technologies to support and enhance children's learning.

Both courses, then, emphasize the integration of online tools with social studies pedagogy.

Methods

A qualitative research study was conducted over the fall term in 2008 that focused on exploring the perceptions of students enrolled in the two technology-infused social studies pedagogy courses about the role of technology in teaching and learning social studies. Data were gathered through self-reported surveys and interviews. At the beginning of the term, students in four sections of the social studies pedagogy courses (three introductory sections and one advanced) who were taught by the two instructors conducting this study were asked by the research assistant voluntarily to compete an online survey about their entering knowledge of and skill with technological tools as well as their understanding of how these tools might be used to support and enhance children's learning of social studies content in elementary classrooms. An online exit survey was also administered to all students at the end of the courses in order to identify changes in their perceptions of the use of technology in their teaching of social studies. Twelve students (2 males and 10 females) volunteered to be interviewed for a half an hour at the midpoint of the 13-week course about their understandings and perceptions of the technology being modeled in their courses and their comfort level with the use of these tools in their teaching of social studies. Interview questions were developed based on students' responses to the first survey. Data were analyzed by comparing pre- and post-survey results and by selecting themes from the interviews that reflected trends in perceptions of technology integration in teaching.

Findings

Survey Responses

The survey responses provided information on three aspects of the participants in this study; first, a profile of their personal experiences with computers and the Internet; second, their preservice education experiences; and third, their pedagogical perspectives regarding technology use both before and after the social studies pedagogy courses.

Personal Experiences

Based on similar results on both the self-reported pre- and post-surveys, we were able to develop an overall profile (see Table 1) of the personal experiences of the students in these courses. One hundred and two students completed the first survey, and 90 completed the post-survey. This lower response rate can be attributed to absenteeism and attrition. Almost all the respondents had their own computer and considered their computer skills fair or good. Most indicated that they had acquired most of their computer knowledge through their own personal experience. They used computers primarily for research, e-mail, social networking, and productivity. As indicated in Table 1, the pre- and post-course responses about their personal experiences remained consistent.

Table 1

Preservice Teachers' Personal Experiences With Computers and the Internet

Survey Questions: Personal Experiences	Percent Pre course survey (*n*=102)	Percent Post course survey (*n*=90)
I have my own computer.	93	92
I would rate my skill level with computers at fair or good.	89	92
My knowledge about the integration of computers into teaching is mainly self-taught or from peers.	74	72
I personally use a computer sometimes or frequently for:		
Research	99	99
Email	98	100
Social networking	89	94
Productivity (word processing, spreadsheets, presentations)	100	99

Preservice Education Experiences

Pre- and post-survey results concerning the participants' exposure to technology in other preservice courses (Table 2) were also similar. Of particular interest was the participants' observation that other education course instructors rarely (10%) or sometimes (67%) used the computer as a teaching tool. Only 28% indicated that instructors of other courses frequently used it. Not surprisingly, almost all the students had a limited understanding about how to use computers in their own teaching (#6). Despite their feeling that they did not understand appropriate methodologies of integrating technology and learning, only 15% of the participants indicated a low comfort level about using technology in their teaching.

Pedagogical Perspectives

Whereas the data gathered about the personal and preservice self-reported experiences of the participants remained fairly consistent on both surveys, some of the data concerning pedagogical perspectives showed changes. The perspectives that remained the same throughout the course seemed to focus on the participants' beliefs about the need for further professional development in the area of technology and learning, the benefits to be derived from using technology in their teaching, and how they planned to use technology in their teaching. For example, they agreed or strongly agreed that using computers in social studies in both primary and upper elementary classrooms was very important, that computers could help improve children's learning, that computers could help children to collaborate with others in other places, that the Internet could be used to teach about multiple perspectives and diverse viewpoints, and that children needed to be taught how to find good online information.

Table 2
Participants' Experiences With Computers and the Internet in Preservice Courses

Survey Questions: Preservice Experiences	Percent Pre course survey (*n*=102)	Percent Post course survey (*n*=90)
I would rate my knowledge level about how to use computers in my teaching as none or beginning.	71	67
In my university courses overall the computer is frequently used to assist my instructors with their teaching.	44	38
In my other education courses the computer is frequently used to assist my instructors with their teaching.	28	28
I would rate my comfort level about integrating computers into teaching as low.	15	15

As shown in Table 3, the pedagogical perspectives that appeared to change over the course term related to their knowledge, skills, and attitudes about using computers in the classroom. By the end of the social studies courses, 88% felt ready to use computers effectively during their practicum compared with 44% in September. The percentage that agreed or strongly agreed that they could think of lots of ways to use computers in teaching social studies after taking the social studies pedagogy courses increased from 83% to 97%. By the end of the social studies courses, the participants were more familiar with Internet tools such as Wikis and blogs (90%, up from 28%), digital mapping and storytelling tools (74%, up from 12%), audio and visual recording tools like podcasts and VoiceThread (72%, up from 18%), and videoconferencing (58%, up from 26%). Ninety-three percent felt more comfortable with how to find quality educational Web sites (up from 68%), and more saw the value in using the Internet as a news source (96%, up from 83%).Fewer respondents viewed the need for ubiquitous access to computers by their students in order for the use of computers to be effective (52%, down from 64%). This may be because instructors often modeled using one computer in the classroom, that is, to engage children in group inquiry activities such as WebQuests. Fewer wanted to learn more about how to integrate computers into teaching (89%, down from 97%), and more felt that they did not need more training in how to use computers effectively in teaching (31%, up from 8%). However, almost half the students continued to feel nervous about using technology in teaching, and more thought that using a computer in their teaching would be time-consuming (53%, up from 43%).

Findings from the Interviews

As mentioned above, we studied the results of the pre-course survey and developed open-ended prompts (see Appendix) to clarify further the perspectives identified in the questionnaire. Several themes emerged from the midpoint interviews with the 12 self-selected students while they were engaged in their pedagogy course. One theme addressed the participants' perceptions of the role of technology as a tool for teaching and learning. A second theme focused on students' ideas on how to integrate technology in their teaching of social studies. A third theme addressed their concerns with using technology including dealing with technology glitches,

Table 3
Participants' Pedagogical Perspectives That Changed During the Study

Survey Questions: Preservice Experiences	Percent Pre course survey (*n*=102)	Percent Post course survey (*n*=90)
I feel ready to effectively use computers during my practicum, agree or strongly agree	44	88
I can think of lots of ways to use the computers in my teaching of social studies, agree or strongly agree	83	97
I am familiar with online communication tools such as wikis and blogs, agree or strongly agree	28	80
I am familiar with the use of digital mapping and storytelling tools to teach geographical and historical thinking, agree or strongly agree	12	74
I am familiar with online audio and visual recording tools like Podcasts and VoiceThread, agree or strongly agree	18	72
I am familiar with videoconferencing, agree or strongly agree	26	58
I am comfortable with how to find quality educational web sites, agree or strongly agree	68	93
I feel that I will need to have access to computers for all of my students in my classroom in order for their use to be effective, agree or strongly agree	64	52
I use the internet as a news source and a way to keep up to date with current events, agree or strongly agree	83	96
I would like to learn more about how to integrate computers into my teaching, agree or strongly agree	97	89
I feel that I need more training in how to use computers effectively in my teaching, agree or strongly agree	94	70
I think that using a computer in my teaching will be time consuming, agree or strongly agree	43	53

classroom management issues, how to ensure the safety of children in an online environment, having access to equipment, having a supportive cooperating teacher, and needing to learn more and know more than the children they would be teaching. One additional concern raised was a perceived lack of preparedness to teach social studies due to time "lost" in their social studies pedagogy classes due to the focus on technology.

Perceptions of the role of technology as a tool. The interview participants saw technology as a way to enhance children's interest in their learning; to make learning more relevant and meaningful; to engage students in discovery learning and exploration; to increase interaction in and outside the classroom between the teacher, the students, and the home; and

to incorporate multiple perspectives on issues through easy access to a wealth of information in a variety of formats.

The following interview excerpts provide some insight into the preservice teachers' thinking about the various roles that technology can play in teaching.

> I want to get the kids involved. I want them to have positive experiences with technology. [I want to use computers] to enhance student interest, provide meaningful learning experiences, increase their sense of wonderment in the subject. It can be a wealth of information if used correctly, students can develop their own meanings and answers to questions that don't have one right answer.

> When I was in school I worked out of a textbook the entire time, and now seeing the options for making the class more interactive and everything, it's fantastic. Plus it includes the visual learners in the classroom. Having information and giving it in many different media doesn't leave anyone out.

> You need to use technology to engage your students and have them do discovery learning and exploration.

> Kids are digital learners and the technology needs to be relevant to them and interactive.

Ideas about how to integrate technology in their teaching of social studies. The interview participants talked about a variety of ways to use technology in their teaching of social studies such as showing videos from YouTube and TeacherTube, Powerpoint lectures, teacher and student research, student productions, interviews, voice recordings, wikis, Nings (social networking), blogs, Delicious (social bookmarking), Wordles, community walk, and digital mapping. The following quotes are typical of their comments.

> Social studies is a great place to incorporate technology and make it more interesting, because social is one of the least favourite subjects among students. If I were using it, it would be based on an actual culminating project or helping them develop deeper understanding. Maybe we do some blog writing, role modeling like take a historical point of view on blogs or they could use digital storytelling.
> Teaching is going to go international–classrooms talking with classrooms in Tunisia, using e-mail to create that inter-connectiveness. I can't wait to try it in teaching.

Concerns about integrating technology in their social studies teaching. In addition to feeling more knowledgeable about the various tools and more motivated to use them in their teaching, the interview participants also identified a number of concerns that they had about using technology in their teaching including dealing with glitches, needing to know more than the children, needing more exposure to the various tools, having access to technology, managing the classroom, being in a supportive practicum, ensuring the safety of students, and feeling unprepared to teach social studies.

Dealing with glitches.

> The thing that overwhelms me is getting something to work. If the technology goes down, how do I fix it?

> [My concern is] that when you have a spectacular lesson, nothing works and you have to pull the lesson out of thin air and do it without technology. [I worry] if something goes haywire, and you totally lose the kids.

One student was already thinking about what to do when encountering these glitches:

> You can expect glitches will happen. Always have a plan B, so you have things ready such as a printout.

The need to know more than the children.

> I would be concerned that kids would know more than me about, say, Powerpoint, or even a spreadsheet, or a database. I would take classes so that I know a little bit about it. If I don't feel completely comfortable with something students want to use, I do not know how I would handle it.

Others did not perceive this lack of knowledge as a concern.

> I'm okay with the kids knowing more than me, because teaching is a learning process for everybody. I have no fear about saying to kids, "I don't know how set this up, I need somebody to help me."

More opportunity to experiment with various tools.

> One aspect that scares me is SMART Boards, and it shouldn't. There are so many ways to use it. It is mind-boggling, I don't even know where to start. I could use it, but if I was told to integrate, I could, but things are always changing too. I could never say I know everything. I constantly have to be learning, doing the training and figuring things out.
>
> I am not comfortable at all right now about using technology in my teaching. The only things I have been exposed to are in this [social studies] course. I don't really know much about using the internet with elementary age students.
>
> I'm excited, but a little overwhelmed because I know there is so much you can do.

Availability of the equipment.

> Accessibility is an issue. In my IPT I did a math unit, and we used *Spy Guys* math and I wanted them to work that project in pairs, but the lab was booked by another class. So we did it as a class in the classroom, which was fine, but I did not get to see who really understood. There was not as much individual input.
>
> Having the resources is a concern because some schools do not have the technology I would like to have.

The need to manage students' learning.

> I think it is hard when students have a computer in front of them. How do we know they are on task?

One student was already thinking about a solution to this concern:

> Having students on task is my concern. I think it is quite easy to get off target. Instead of saying "surf and find the Canadian government," I would have three sites on the whiteboard and those are the only sites they can go to. I think that is how I would manage it.

Another management issue was about ensuring that the assigned tasks were at the appropriate ability levels for the children.

> My concerns would be that the activity set out for them is scaffolded enough so that they can actually do it.
>
> I worry the students absolutely don't get what you are trying to get at.

Their upcoming student teaching experience.

> In my [first] practicum the school had two SMART Boards and the teachers never even touched it.
>
> Some teachers are threatened by technology, which is so sad. If they could just realize the value in it.
>
> A lot of my friends and family are teachers. I go home and am really excited about what I have been shown that are technology based; videos you can use, Zoho Notebook, and the first response I get is "that's great, but how will it work in a real classroom? We don't have the technology. How are you going to teach it if you do not have the technology?" So I feel there is some cynicism about using it in the "real" classroom. It makes me a little bit nervous, coming out of university thinking about the great things I want to do, but will I be able to use it? You go into an environment [school] and you are so excited. And then you feel all the excitement you have about something is shot down.
>
> I sure hope my APT (practice teaching) is in a school with a focus on technology because I have learned all these great things here [in the social studies course] about it and I hope to apply it somehow, instead of just drawing maps on the floor– traditional style social studies.
>
> The other teachers at my mentor school had never heard of any of these tools–the Wiki, Wordle, they were all new to them. I am enjoying being able to share them with other teachers.

Safety of students.

> It is scary to have kids on computers. There are a lot of bad things that can result from that. How do you protect your students when they are online? How do you ensure their security on a Wiki or Ning, or how do you stop them navigating some place you do not want them to go? I know that if I had a student on a chat and something happened, I would be responsible. So it is really scary.
>
> I would like to learn more about the safety of using it, such as protecting yourself so that students do not get into [compromising] sites.

Feeling adequately prepared to teach social studies.

> I worry that I would leave this university not having enough ideas or knowing where to get ideas.

> I think it's fantastic using technology, but I want more insight into how I'm supposed to have children understand what I'm trying to say and how I can be a good teacher with the units and the resources I can use to meet the different learner outcomes and understand it on a bigger basis that what I know now.
>
> I believe it would be more beneficial to focus more on the Program of Studies for social studies.

In sum, the conversations with the education students clarified and brought deeper understanding to the survey responses. All the interview participants said that they believed technology was a useful tool for fostering learning and identified how they could use it in their social studies classrooms. They all expressed concerns over their ability to handle technology glitches, accessibility of equipment, and their need for more opportunity to experiment with new technologies such as the SMARTboard. Some felt that they needed to know more about technology than their students before they would integrate computers in their teaching, and all were concerned about classroom management and the children's safety online. Most of the interviewees were concerned that their mentor teacher in their upcoming practicum might not use technology and so might not be able to support them in their attempts to integrate computers with learning. At the midpoint of the social studies pedagogy courses, a few of the preservice teachers were feeling that the courses were providing too much information about technology and not enough about teaching social studies.

Discussion and Recommendations

In general, based on data from the survey responses and open-ended interviews, the preservice teachers in our study seemed to have benefited from the increased exposure to learning about how to use technology to enhance children's learning in social studies during their social studies pedagogy courses. By the end of the courses, the post-survey showed that most of the study participants felt prepared and ready to use technology in their future teaching. They appeared to understand the benefits for learning from technology integration. They also recognized that to integrate technology successfully in their lessons required careful planning and preparation. Overall, they were comfortable with and ready to try a variety of technological tools in their social studies instruction in their upcoming nine-week student teaching experience during winter 2009. Pedagogy courses that infuse technology, then, may assist preservice teachers in changing their perspectives toward the use of technology in their teaching. However, several of the concerns expressed by the interview participants are worrisome for us both as researchers and as course instructors.

One issue is the education students' belief that there was an overemphasis on technology in our courses. Some of the interviewees perceived that the social studies pedagogy courses addressed technology integration in the place of social studies content, rather than seeing the technology as a tool to learn about the *what* and *how* of social studies teaching. What did our preservice teachers think they were missing in their learning about social studies in place of learning about technology? Why do preservice teachers perceive subject-area knowledge as separate from knowledge of technology when the technology is used to deepen their understanding of the subject-area knowledge? How do we help preservice teachers to see that technology is a learning tool just like any other (i.e., textbook, paper and pencil) rather than a separate and distinct entity? In future offerings of our courses, we plan to put more and

continual emphasis on explaining that the various technologies are being introduced as tools for helping children to develop conceptual understandings and to learn the important skills of social studies including locating, evaluating, and ethically using information; thinking critically and creatively; and problem-solving, decision-making, and collaborating with others. Perhaps this will help to clarify for our students that they are not being taught about digital tools in the place of some other important social studies subject-area knowledge.

A second concern was the anxiety expressed by our education students about using technology in their teaching, particularly when it came to dealing with technology glitches. By the end of the course, half the survey participants continued to feel nervous. How do we help preservice teachers to embrace uncertainty when it comes to the use of technology as a part of our teacher education programs? It would appear that preservice teachers need more frequent opportunities to experiment with the various technologies while they are learning to teach in order to become risk-takers and problem-solvers who can think on their feet and deal with computer-related problems. Instilling this increased level of confidence should go a long way in encouraging more preservice teachers to experiment with technology during their student teaching.

One final issue that has arisen from this study is how to help mentor teachers and schools to recognize the importance of providing support and assistance for our preservice teachers in their efforts to integrate technology into their teaching during their student teaching experiences. The importance of the role of the mentor teacher cannot be over emphasized as research shows that the use of technology by the mentor teachers positively affects the preservice teachers' perceptions of technology integration (Doering, Hughes, & Huffman, 2003; Wang, Ertmer, & Newby, 2004).

These issues and concerns will be the focus of future studies.

Conclusion

Infusing subject-specific pedagogy courses in teacher education programs with educational experiences that model the use of emerging learning technologies is valuable. As can be seen in our results, preservice teachers believed that their technological knowledge and skill regarding how and why to use various technological tools for teaching social studies subject matter was more extensive following their social studies pedagogy courses. Infusing technology into preservice pedagogy courses not only increased our preservice teachers' understandings of a variety of ways to approach the use of various technology tools in their teaching, but also increased their willingness to use these tools during their practice teaching. However, it is imperative that all education professors model the integration of technology and continue to prepare teachers for teaching with technology so as to enhance children's learning if we hope to encourage our students to go out to schools as beginning teachers and to foster change in this area.

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Appendix: Open-ended Prompts Used to Explore Preservice Teachers' Perspectives on Technology Integration

1. Tell me some of the things you are studying in your social studies course so far.
2. Tell me how technology has been used in class. Why was it used?
3. Tell me how you felt about some of those experiences. What did you learn about those tools?
4. Tell me how you might be able to use similar tools in your teaching. What are some other tools you might use?
5. How do you feel about using technology in your teaching right now?
6. What would you still need to know about using these tools before you were able to apply them in your own teaching?
7. Tell me your concerns about using technology in your teaching.
8. Tell me what you think of the assignments that require you to apply some of these technologies.
9. How prepared to complete these assignments that use technology do you feel?
10. What kind of help would be most beneficial in completing these assignments?
11. Are these technology tools helping you to better understand how to teach social studies?
12. You participated in a videoconference in this class. How did it help improve your understanding of methodologies for teaching social studies? Tell me how such a tool might be used effectively in teaching.
13. If you chose to make a digital scrapbook using Zoho Notebook, tell me how you might use this tool in your own teaching.
14. Tell me how technology can be used effectively in a teaching.
15. What else would you like to share about your computer-based experiences in your social studies pedagogy course?